

## Description

# Anti-Theft Protective Cover

### BACKGROUND OF INVENTION

[0001] Field of the invention

[0002] This invention relates, generally, to anti-theft devices. More particularly, it relates to a device that prevents theft of diesel fuel from diesel fuel dispensers.

[0003] Description of the prior art

[0004] A thief can steal diesel fuel from a diesel fuel dispenser by using a crowbar or other suitable implement to pry back a cover of the dispenser a short distance and to insert the same implement, or another implement, into the hollow interior of the dispenser to disable a pulser. The function of the pulser is to generate electrical signals that report the amount of fuel consumed to the electronics of the dispenser so that the quantity and price of dispensed fuel may be displayed to the consumer.

[0005] The liquid control meter of the dispenser continues to operate when the pulser is disabled and diesel fuel is deliv-

ered to the consumer. However, the fluid flow is not detected by the disabled pulser. An attendant monitoring a computer screen that receives information from the pulser will be unaware that fuel is being dispensed.

[0006] Since theft is so easy when a pulser is unprotected, the station attendant is unaware that a theft has occurred until an honest trucker reports that a dispenser is dispensing free fuel. By then, several of the initial thief's friends and others willing to take advantage of the broken dispenser may have filled their respective saddle tanks.

[0007] Most gasoline theft is committed by people who fill their car's tank and drive off without paying, secure in the knowledge that law enforcement authorities have little time available to search for and apprehend such thieves. Since such theft is relatively uncommon, and since the amount of fuel stolen per incident is considered to be a nominal amount by the industry, not much attention has been paid to ways to stop such theft.

[0008] However, large trucks are equipped with gas tanks known as saddle tanks that can hold two to three hundred gallons of diesel fuel. Drive off theft of diesel fuel is rare because trucks accelerate slowly and a station owner has plenty of time to write down a license plate number. Due

to the large scale of such a theft, law enforcement authorities will search for and apprehend such thieves.

[0009] Thieves have therefore designed new ways to get free diesel fuel. The most widely spread technique is to pry back a cover of the diesel fuel dispenser, commonly known as a fuel pump, and disable the pulser. A pulser counts the revolutions of a liquid control meter and includes a coupler that interconnects the dispenser's liquid control meter and the pulser. When the liquid control meter and the pulser are decoupled from one another, fuel continues to flow but no electrical signal indicating such flow is generated, and a thief may drive off without attracting attention because no sale will have registered on the dispenser or on the remote monitor that is watched by an attendant. Accordingly, after prying back the cover of a diesel fuel dispenser, the thief uses a suitable tool to poke the coupler. The coupler is not designed to withstand such an attack and it is relatively easy to knock out of its functional position. With the coupler knocked out of place, the liquid control meter is no longer coupled to the pulser and fuel is dispensed without detection.

[0010] Several attempts have been made in an effort to stop this type of theft. A large metal band is sometimes wrapped

around the dispenser in an effort to prevent prying away of the cover. The bands quickly stretch and loosen, however, enabling thieves to pry back the cover without any problem. Some thieves simply cut off such bands if they are encountered.

[0011] Another attempt includes the impaling of the dispenser with a large bolt that extends from the front cover to the rear cover. Although this makes complete removal of the covers difficult, it does little to prevent a thief from prying back a corner of the cover to expose the internal workings of the dispenser. The amount of prying required is nominal a pencil width crack is all that is needed to expose the pulser and its vulnerable coupler.

[0012] The manufacturers of dispensers could solve the problem by re-designing the dispensers, but such re-designing would require a huge investment. Nor is it obvious as to what form such re-designing would take, *i.e.*, inventive effort would be required in such re-designing. Redesigning and replacing the thousands of diesel fuel pumps in use throughout the world is simply not a cost-effective option.

[0013] A more suitable solution would be a low cost device that could be retrofit onto existing dispensers.

[0014] However, in view of the prior art considered as a whole at the time the present invention was made, it was not obvious to those of ordinary skill in the pertinent art how such a device could be provided.

#### **SUMMARY OF INVENTION**

[0015] The long-standing but heretofore unfulfilled need for a device that prevents theft of diesel fuel from diesel fuel dispensers is now met by a new, useful, and nonobvious invention.

[0016] An important object of this invention is to provide an anti-theft device that prevents thieves from stealing diesel fuel from diesel fuel dispensers.

[0017] A more specific object is to provide an anti-theft device that may be retrofit onto existing diesel fuel dispensers.

[0018] An even more specific object it to provide an anti-theft device made of inexpensive materials, which is easy to install but difficult to remove.

[0019] These and other important objects, advantages, and features of the invention will become clear as this description proceeds.

[0020] The invention accordingly comprises the features of construction, combination of elements, and arrangement of parts that will be exemplified in the description set forth

hereinafter and the scope of the invention will be indicated in the claims.

#### **BRIEF DESCRIPTION OF DRAWINGS**

[0021] For a fuller understanding of the nature and objects of the invention, reference should be made to the following detailed description, taken in connection with the accompanying drawings, in which:

[0022] Fig. 1 is a front perspective view of the novel apparatus;

[0023] Fig. 2 is a rear perspective view of said novel apparatus.

[0024] Fig. 3 is a front elevational view of a diesel fuel dispenser including a liquid control meter and pulser in phantom lines;

[0025] Fig. 4 is a perspective view depicting a pulser and an implement used to disable the pulser;

[0026] Fig. 5 is a perspective view depicting a disabled pulser;

[0027] Fig. 6 is a front elevational view like Fig. 1 but having a cut-away to show an unprotected pulser;

[0028] Fig. 7 is a front elevational view like Fig. 4 but having a cut-away to show a pulser protected by the inventive protector;

[0029] Fig. 8 is a view taken along line 8-8 in Fig. 6; and

[0030] Fig. 9 is a view taken along line 9–9 in Fig. 8.

#### **DETAILED DESCRIPTION**

[0031] Referring to Figs. 1 and 2, it will there be seen that the reference numeral 10 denotes an illustrative embodiment of the present invention as a whole.

[0032] Anti-theft device 10 includes first side wall 12, angled wall 14, front wall 16, second side wall 18, end wall 20, and tab 22. Rectangular opening 19a is in open communication with rear edge 19 of first side wall 12, substantially centrally thereof.

[0033] The extent of first side wall 12 is about twice the extent of second side wall 18 and the extent of end wall 20 is substantially equal to the extent of second side wall 18. First side wall 12 is substantially parallel to second side wall 18. Angled wall 14 is positioned at a substantially forty five degree (45°) angle relative to first side wall 12 and front wall 16.

[0034] Tab 22 is fixedly secured to or formed integrally with second side wall 12 at an end thereof opposite from end wall 20 and is centrally apertured as at 24. Tab 22 is positioned in perpendicular relation to second side wall 18 at the rearward end of the lower edge 18a of said second

side wall 18.

[0035] Anti-theft device 10 is preferably formed of plate steel but other suitable materials are within the scope of this invention. The materials should be at least twelve (12) gauge.

[0036] Having disclosed the structure of the novel anti-theft device, its installation to a diesel dispenser may now be described with reference to Figs. 3–9.

[0037] Diesel dispenser 60 includes a front cover 60a and a back cover, not depicted, of the same construction. Neither of these covers is particularly strong and a crowbar or other suitable instrument may be employed to pry either cover away from the frame of dispenser 60. In other words, covers 60a and 60b are primarily provided for aesthetic reasons and are not built to deter thieves from breaking into the essentially hollow interior of the fuel dispenser.

[0038] Fig. 3 depicts how a single implement 61 may be used to pry open cover 60a and to disable the part of dispenser 60 that measures and reports the amount of fuel being dispensed. Two separate implements may also be used, one to pry open cover 60a and another to disable said part.

[0039] More particularly, Fig. 3 depicts, in phantom lines, liquid



control meter 62 and pulser 64 that are mounted within the hollow interior of dispenser 60. When fuel is being dispensed, said fuel flows through liquid control meter 62 and causes rotor blades that form a part of the liquid control meter to rotate about an axis of rotation. Pulser 64 includes a suitable means for counting the blades of the liquid control meter as they rotate. For example, if the liquid control meter contains six rotor blades, the pulser counts one revolution of the liquid control meter for each sixth blade that rotates past it. The volume of diesel fuel that must flow through the liquid control meter to cause one revolution thereof is known so in this way the amount of diesel fuel dispensed can be computed.

[0040] Rectangular slot 19a (Fig. 2) accommodates a protrusion of the type commonly formed in a typical liquid control meter 62.

[0041] As depicted in Fig. 4, pulser shaft 66 forms a part of pulser 64 and liquid control meter shaft 68 forms a part of liquid control meter 62. Coupler 70 joins together pulser shaft 66 and liquid control meter shaft 68 so that said shafts rotate conjointly with one another.

[0042] A knowledgeable thief can steal diesel fuel by prying cover 60a slightly away from its frame with a suitable implement

61, followed by using the same implement or another tool to push coupler 70 out of its position so that pulser shaft 66 and liquid control meter shaft 68 are no longer coupled to one another. Fig. 5 depicts pulser shaft 66 and liquid control meter shaft 68 when coupler 70 has been removed.

[0043] When coupler 70 is no longer performing its shaft-coupling function, fuel is dispensed the normal way and flows through liquid control meter 62 in the normal way, but pulser shaft 66 does not rotate and pulser 64 therefore sends no signals to the electronics of the dispenser. Thus, no price of fuel is generated and displayed to the consumer or to a station attendant by the dispenser electronics because said electronics receives no signals indicating that fuel is being dispensed.

[0044] Anti-theft device 10 is formed of plate steel that shields pulser 64 and hence coupler 70 so that said coupler cannot be knocked out of position by a tool, even if cover 60a is completely removed from dispenser 60. The cut-away view of Fig. 6 depicts an unprotected pulser and the cut-away view of Fig. 7 depicts a protected or shielded pulser.

[0045] Anti-theft device 10 is specifically constructed so that it takes advantage of the pre-existing structural features of

dispenser 60.

[0046] Specifically, as perhaps best understood in connection with Figs. 8 and 9, liquid control meter 62 is supported by flat support plate 80 that is supported by a pair of parallel frame members, not depicted, that form a part of the dispenser frame.

[0047] As depicted in Fig. 7, screw 84 secures support plate 80 to a first frame member of the two unillustrated frame members and another screw secures said support plate 80 to a second frame member of said two unillustrated frame members.

[0048] To install anti-theft device 10, screw 84 is removed and any electrical wiring and small piping extending from liquid control meter 62 to the dispenser electronics, not shown, is moved out of the way as needed so that opening 24 formed in tab 22 (Fig. 2) may be placed into alignment with the opening in support plate 80 made available by the removal of screw 84. Tab 22 is placed into overlying relation to support plate 80 with opening 24 formed in tab 22 in alignment with said available opening screw 84 is reinstalled. Suitable washers, a lock washer and a nut are used to secure said screw in a well-known way.

[0049] As depicted in Fig. 8, opposing open-ended slots 62a,

62b are formed in liquid control meter 62 by its manufacturer. Openings 36 and 38 (Figs. 1 and 2) are formed in first side wall 12 in laterally spaced relation to one another. Opening 36 is adapted to receive bolt 37 and opening 38 is adapted to receive bolt 39. When tab 22 is installed in the manner described above, openings 36 and 38 are in alignment with slots 62a, 62b, respectively. Bolts 36a, 38a extend through slots 62a, 62b and through openings 36, 38 to secure device 10 to liquid control meter 62. Suitable washers, lock washers, and nuts are used to complete the engagement in a well-known way.

[0050] Thus, anti-theft device 10 is secured to liquid control meter 62 in two locations and to support plate 80 as well. All three of these locations are hard to reach and it takes about half an hour to remove cover 60a completely from dispenser 60 to provide access to the three screws and to remove all three of them. None of the three screws can be removed if the thief merely pries cover 60a back with respect to its frame.

[0051] This thirty minute interval compares advantageously with the fifteen seconds or so that it takes to pry back cover 60a a short distance and to poke out coupler 70. Thus, a station attendant has almost no opportunity to discover a

thief in action when a dispenser 60 is not equipped with anti-theft device 10 but said station attendant has ample opportunity to notice anyone who removes cover 60a completely and works on dispenser 60 for half an hour or so.

[0052] It will thus be seen that the objects set forth above, and those made apparent from the foregoing description, are efficiently attained. Since certain changes may be made in the above construction without departing from the scope of the invention, it is intended that all matters contained in the foregoing description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

[0053] It is also to be understood that the following claims are intended to cover all of the generic and specific features of the invention herein described, and all statements of the scope of the invention that, as a matter of language, might be said to fall therebetween.

[0054] Now that the invention has been described,